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EXAMINER
RETTA, YEHDEGA

ART UNIT	PAPER NUMBER
3622	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2007*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6,7,9 and 11-35* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1, 6, 7, 9 and 11-35* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

This office action is in response to Request for Continued Examination filed October 29, 2007. Applicant amended claims 1, 9, 13, 24 and added new claims 27-35. Claims 1, 6, 7, 9 and 11-35 are pending.

Claim Objections

Claims 6 and 7 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The test for a proper dependent claim is whether the dependent claim includes every limitation of the parent claim. The test is not whether the claims differ in scope. A proper dependent claim shall not conceivably be infringed by anything, which would not also infringe the basic claim. If independent claim recites a method of making a specified product, a claim to the product set forth in the independent claim would not be a proper dependent claim since it is conceivable that the product claim can be infringed without infringing the base method claim if the product can be made by a method other than that recited in the base method claim. Claims 6 and 7 are not proper independent claims since the claims incorporate all the limitations of an independent claim. Claims 6 and 7 are dependent on claim 1. Therefore, claims 6 and 7 are not independent claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 35 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim recites training offer generation system within a first environment; analyzing the first environment to identify particular characteristics; identify a second environment which has characteristics similar to the particular characteristics of the first environment and applying the trained offer generation system to the second environment.

The specification teaches as follows:
> In step 610, the server 24 trains the genetic programs stored by the server 24 based on the results of the whether the offer was made by the cashier, accepted by the customer or rejected by the customer (e.g., the server 24 "distributes the reward"). Exemplary reward distributions are described in more detail in Appendix B. In step 611, the process 600 ends. As with the <u>XCS</u> techniques described with reference to FIG. 4 and Appendix A, new genetic programs may be created using crossover, replication and mutation processes. For example, a new population of genetic programs (e.g., offspring genetic programs) may be generated by "mating" (e.g., via crossover) two genetic programs, by replicating an existing genetic program and/or by mutating an existing genetic program or offspring genetic program. Selection of parent" genetic programs may be based on, for example, the success (e.g., "fitness" described in Appendix B) of the parent genetic programs"

The specification however does not teach analyzing a first environment to identify particular characteristics and identify a second environment which has characteristics similar to the particular characteristics of the first environment and applying the trained offer generation system to the second environment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 34 is rejected under 35 U.S.C. 102(e) as being anticipated by Fayyad et al. (US 6,643,645).

Regarding claim 34, Fayyad teaches initializing an offer generation system, the offer generation system comprising at least one of a genetic algorithm or a genetic program to generate offers; establishing a threshold criteria for activation of the offer generation system; running the offer generation system as a background process in a given environment, whereby the offer generation system is trained to make offers in the given environment; and the offer generation system automatically self activating, in response to detecting the threshold criteria is met (see fig. 3-6, col. 2 lines 57-67, col. 5 lines 13-63, col. 6 line 13 to col. 7 line 46).

Claim 35 is rejected under 35 U.S.C. 102(e) as being anticipated by Bieganski et al. (US 6,412,012).

Regarding claim 35 Bieganski teaches initializing an offer generation system, the offer generation system comprising at least one of a genetic algorithm or a genetic program to generate offers; establishing a threshold criteria for activation of the offer generation system; running the offer generation system as a background process in a given environment, whereby the offer generation system is trained to make offers in the given environment; and the offer

generation system automatically self activating, in response to detecting the threshold criteria is met (see fig 12-14, col. 19 line 1 to col. 20 line 64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6, 7, 9, and 11-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Walker et al. (US 6,397,193) in view of Bieganski et al. (US 6,412,012).

Regarding claims 1, 6, 7, 12 and 26, Walker teaches method comprising of receiving an order information based on order of a customer; determining an offer based on round-up amount; outputting an indication of the determined offer; displaying the offer (see fig. 10-13, col. 12 lines 20-35). Walker does not explicitly disclose offer based on genetic program or algorithm. Bieganski teaches recommendation provided using genetic algorithm, collaborative filtering, neural networks or other statistical models (see abstract, col. 3 lines 19-58, col. 7 lines 45-64, col. 10 lines 17-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use genetic program or algorithm, as in Bieganski, to recommend items that are more compatible with other purchases or recommendations, as taught in Bieganski (col. 19 line 1 to col. 20 line 64). Bieganski also teaches displaying an offer to the customer via a display (see col. 7 line 65 to col. 8 line 14).

Regarding claim 9, Walker teaches receiving order information based on an order of a customer; determining a transaction total based on the order; calculating a difference between the

total and a next highest dollar amount; determining an offer for the customer based on the difference (see fig. 10-13, col. 12 lines 21-67, col. 13 line 40 to col. 14 line 67). Walker does not teach use of genetic program or algorithm to determine the offer. Bieganski teaches recommendation provided using genetic algorithm, collaborative filtering, neural networks or other statistical models (see abstract, col. 3 lines 19-58, col. 7 lines 45-64, col. 10 lines 17-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use genetic program or algorithm, as in Bieganski, to recommend items that are more compatible with other purchases or recommendations, as taught in Bieganski (col. 19 line 1 to col. 20 line 64).

Regarding claim 11, Walker does not explicitly teach determining an amount of sales tax associated with the transition and the determining the offer is based on the amount of sales tax. Official notice is taken that is old and well known to first ad the sales tax before determining the total tax if sales tax is applicable to the sale. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to know that, if sales tax is applicable to the Walker's transaction, that the total amount would be determined after the sale tax is added to the transaction.

Regarding claims 13, Walker teaches determining a transaction total based on order transaction; receiving an indication of acceptance of the offer; generating new order information representing at least one additional product being added to the order information; determining a new transaction total based on the new order information and outputting an indication of the new transaction total (see fig. 10-13, col. 12 lines 21-67, col. 13 line 40 to col. 14 line 67

Regarding claims 14-23, Walker does not teach determining an offer based on historical offer criteria or generating a plurality of genetic programs and each genetic program is given an

opportunity to generate at least one outcome; selecting the program at random; generating a set of rules based on historical information and creating new rules based on feedback; determining score etc. However those features are inherent feature of Genetic programming. Genetic Programming, which is an extension of Genetic Algorithm (GA), uses analogies from natural selection and evolution. The main difference between them is the solution encoding method. GA encodes potential solutions for a specific problem as a simple population of fixed-length binary strings named chromosomes and then applies reproduction and recombination operators to these chromosomes to create new chromosomes. GP encodes multi potential solutions for specific problems as a population of programs or functions. The programs can be represented as parse trees, of internal nodes and leaf nodes (or primitive functions and terminals). The terminals can be viewed as the inputs to the specific problem. They might include the independent variables and the set of constants. The primitive functions are combined with the terminals or simpler function calls to form more complex function calls. For instance, GP can be used to evolve new rules from general ones. GP randomly generates an initial population of solutions. Then, the initial population is manipulated using various genetic operators to produce new populations. These operators include reproduction, crossover, mutation, dropping condition, etc.

Regarding claims 24 Walker does not explicitly teach displaying the offer via a display at a retail store. Bieganski teaches displaying the offer to the customer via a display at a retail store; wherein the offer is for at least one food item (see col. 7 line 65 to col. 8 line 14). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to put the offer on display so that the shopper and the cashier would be able to be informed about the offer.

Regarding claim 25, Walker does not explicitly teach the store comprising of quick service restaurant. However official notice is taken that is old and well know in the art of fast

food (quick service restaurant) to offer an additional item to a customer based on his/her

purchased items, therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to provide an offer using genetic programming as in Bieganski in a quick

service restaurant in order to optimize the outcome.

Claims 27 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bieganski et al. (US 6,412,012) in view of Ross (US 6, 477,571).

Regarding claims 27 and 33, Bieganski teaches receiving order information based on an

order of a customer; and generating an offer for the customer and outputting the generated offer.

Bieganski teaches recommendation provided using genetic algorithm, collaborative filtering,

neural networks or other statistical models (see abstract, col. 3 lines 19-58, col. 7 lines 45-64,

col. 10 lines 17-49). Bieganski does not teach the genetic program or algorithm includes

translating the order information to a bit stream; generating the offer based on genetic program

or algorithm comprising matching the bit stream to one or more classifiers of a population of

classifiers; Ross teaches translating order information (transaction) to bit stream (alphanumeric

string) and matching the bit stream to a classifiers. Ross teaches a service request string

representations are passed to a transaction analyzer which first matches each service request to a

service request identifier in a service request table that is used to store identifications of all

service requests. Ross teaches each service request is represented by its request identifier

obtained from the service request table 58, thereby providing a more compact and simpler

service request representation (see col. 1 line 38 to col. 4 line 44, col. 6 lines 38-59). Ross also

teaches the bit stream and classifier is a uniform length (see col. 4 lines 10-22). Therefore, it

would have been obvious to one of ordinary skill in the art at the time of the invention to modify

Bieganski recommendation system using Ross's translation system in order to express the transactions in simple and precise format and also to predict additional transaction occurrence, as taught in Ross.

Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bieganski et al. (US 6,412,012) in view of Ross further in view of "Generalization in XCS", Stewart W. Wilson, submitted to ICML '96 Workshop on Evolutionary Computing and Machine Learning (herein after Wilson).

Regarding claim 28-32 Bieganski/Ross does not teach determining that a minimum number of classifiers of the population of classifiers has not been matched; generating one or more additional classifiers; and adding the additional classifiers to the population of classifiers, in response to determining that the minimum number of classifiers has not been matched; said additional classifiers are generated through at least one of crossovers of existing classifiers or mutations of existing classifiers; determining whether to perform an exploit operation or an explore operation in selecting a classifier to make an offer; in which in response to determining that an explore operation is to be performed, the given classifier is selected at random, it is taught in Wilson (see par. 3.1, 5.0, 5.1). Wilson teaches classifier system in which fitness is based on prediction accuracy which increases the proportion of the population that consists of accurate classifiers at the same time reducing the total number of classifiers. Wilson also teaches in the exploit mode the system seeks the action for which the predicted payoff is highest (best classifier). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Wilson classifier system in Ross's classifier to derive accuracy from a prediction of error and fitness.

Response to Arguments

Applicant's arguments with respect to claims 1, 6, 7, 9 and 11-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yehdega Retta whose telephone number is (571) 272-6723. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Stamber can be reached on (571) 272-6724. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yehdega Retta/
Primary Examiner, Art Unit 3622